

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application Number 09/750,688
Attorney Docket No. Q62534

AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes an amendment to FIG. 3 to correct a clerical error. In particular, element 202, the “CONTETION CONTROLLER” has been editorially corrected to be --CONTENTION CONTROLLER--.

Attachment: One (1) Replacement Sheet (FIG. 3)

REMARKS

Reconsideration and allowance of this application are respectfully requested. Claims 1-10 are pending in the application. The rejections are respectfully submitted to be obviated in view of the remarks presented herein.

As a preliminary matter, the drawing FIG. 3 has been editorially amended to correct a spelling error. The "CONTETION CONTROLLER" (element 202) has been changed to --CONTENTION CONTROLLER--.

Rejection Under 35 U.S.C. § 103(a) – Applicant's Admitted Prior Art in view of Magill et al.

Claims 1, 2 and 5-10 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Applicant's admitted prior art in view of Magill et al. (U.S. Patent Number 6,343,066; hereinafter "Magill"). The rejection is respectfully traversed.

Regarding claims 1 and 6, Applicant's claimed invention relates to a method and apparatus of switching, such as in an input buffer type packet switching equipment. An arbiter outputs a connection permission signal to one of M input line buffers based on connection request signals outputted from the M input line buffers, and also outputs a control signal to a switch. The connection permission signal is output, at a designated slower timing interval than a normal timing interval, to an input line buffer that outputs cells to an external output line whose output line rate is slower than a corresponding input line rate. The designated slower timing interval is a constant periodic rate which is slower than said corresponding input line rate, and the designated slower timing interval is set so that arrival of cells at the output line sections is at a rate not greater than the output line rate (figure 4 and page 8, lines 11-17). Buffer

overflow and output overflow are prevented in this switching system and method (page 7, lines 13-23).

Turning to the cited art, the background of the invention section of Applicant's specification describes an input buffer type packet switching equipment with FIFOs (404) provided in each of the input line buffers (402), and buffers (414) provided in each output line section (413). The buffers (414) are needed for transmission situations when an output line rate is slower than the corresponding input line rate.

Examiner maintains that the combination of Applicant's admitted prior art and Magill teaches each feature of the claimed invention. However, there is no teaching or suggestion in Applicant's figure 1 that "said designated slower timing interval is a constant periodic rate which is slower than said corresponding input line rate, said designated slower timing interval is set so that arrival of cells at said output line sections is at a rate not greater than said output line rate, and buffer overflow and output overflow are prevented," as Applicant claims.

Magill does not remedy the deficiencies of Applicant's figure 1. Magill teaches a readout scheduler which schedules data out of an input data buffer and into a switch fabric (column 3, lines 10-15). A global scheduler designates for each input port the right to send certain numbers of packets from various ensembles during a frame (column 3, lines 50-67). The global schedule indicates how many packets from each ensemble may be sent in the upcoming frame.

However, there is no teaching in Magill that "said designated slower timing interval is a **constant periodic rate** which is slower than said corresponding input line rate," as recited in Applicant's claims. Instead, Magill discloses only a *number* of packets to be sent during a frame, that is, how many packets each input port may send from each ensemble during an

upcoming frame (column 6, lines 10-15 and 62-67). Magill's number of packets to be sent during a frame does not teach or suggest a designated slower timing interval which is a constant periodic rate slower than a corresponding input line rate, as claimed. Magill merely allots a certain *number of packets* to be sent, but does not designate any timing interval of output rate. Although Magill discloses that rates for sending packets are assigned for each input port, and that per-frame grants are made for a number of packets sent per frame, these constraints do not teach or suggest a designated timing interval of a constant periodic rate, as claimed.

Additionally, Magill does not teach or suggest that "said designated slower timing interval is set so that arrival of cells at said output line sections is at a rate not greater than said output line rate, and buffer overflow and output overflow are prevented," as Applicant claims. Magill's packets actually do enter the switch fabric *at a faster instantaneous rate* than the rate in which packets leave the contention point (column 6, lines 44-47). Magill's readout scheduler only acts to control and minimize these occurrences of packets arriving at a greater rate than the output rate. Conversely, Applicant's claimed invention is distinguished in that the connection permission signal for switching cells is output to an input line buffer at a designated slower timing interval when the input line buffer outputs cells to an external output line whose output line rate is slower than a corresponding input line rate, and that the designated slower timing interval is a constant periodic rate which is slower than the corresponding input line rate, the designated slower timing interval is set so that arrival of cells at the output line sections is at a rate not greater than the output line rate, and buffer overflow and output overflow are prevented. Magill, by having packets heading towards a contention point faster than packets leaving the contention point though only for a short period of time, clearly does not teach or

suggest this claimed element of the present invention. At least by virtue of the aforementioned differences, the invention defined by Applicant's claims 1 and 6 are patentable over Applicant's figure 1 in view of Magill. Applicant's claims 2 and 5 are dependent claims including all of the elements of independent claim 1, which as established above, distinguishes over Applicant's figure 1 in view of Magill. Therefore, claims 2 and 5 are distinguished over Applicant's figure 1 in view of Magill for at least the aforementioned reasons as well as for their additionally recited features. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

Regarding claim 7, a method of outputting data in packet switching is described which stores data inputted from a plurality of input lines and selectively outputs the stored data to a plurality of external line sections. The stored data output to an external line section with an output line rate slower than a corresponding input line rate is outputted at a designated rate slower than the corresponding input line rate. The designated slower rate is a constant periodic rate which is slower than the corresponding input line rate, and the designated slower rate is set so that arrival of the outputted stored data at the external line sections is at a rate not greater than the output line rate. Buffer overflow and output overflow are also prevented.

As discussed above, neither Applicant's figure 1 nor Magill teach or suggest that "said designated slower rate is a constant periodic rate which is slower than said corresponding input line rate, said designated slower rate is set so that arrival of said outputted stored data at said external line sections is at a rate not greater than said output line rate, and buffer overflow and output overflow are prevented," as Applicant claims. At least by virtue of the aforementioned differences, the invention defined by Applicant's claim 7 is patentable over Applicant's figure 1

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in view of Magill for analogous reasons as discussed above. Applicant's claims 8-10 are dependent claims including all of the elements of independent claim 7, which as established above, distinguishes over Applicant's figure 1 in view of Magill. Therefore, claims 8-10 are distinguished over Applicant's figure 1 in view of Magill for at least the aforementioned reasons as well as for their additionally recited features. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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